

REMARKS

The Office Action dated October 31, 2006, has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1, 24 and 35 have been amended to more particularly point out and distinctly claim the subject matter of the invention. No new matter has been added. Claims 1, 3, 6, 7, 9-24, 26 and 28-35 are submitted for consideration.

Claims 1, 3, 6, 7, 9-24, 26 and 28-35 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,268,828 to Martek (hereinafter Martek). According to the Office Action, Martek discloses all of the elements of the claims except for a predetermined coverage area. However, the Office Action has taken the position that the predetermined coverage area would have been obvious. The rejection is traversed as being based on a reference that neither teaches nor suggests the novel combination of features clearly recited in claims 1, 3, 6, 7, 9-24, 26 and 28-35.

Claim 1, upon which claims 3, 6-7, 9-23 depend, recites an antenna arrangement including at least two antennas for providing radio coverage to a plurality of user equipment in a predetermined area of a mobile communications network. The at least two antennas are arranged to have different vertical properties to thereby provide at least two different areas of radio coverage within the predetermined area. There is provided a plurality of frequencies for use in the predetermined area. The antenna arrangement is configured to dynamically adjust transmission properties of at least one of the antennas

based on a distribution of users within the predetermined area and frequency requirements for users within the predetermined area, to dynamically allocate at least one user equipment to at least one group associated with at least one of the at least two antennas based on link characteristics of a user equipment, and dynamically allocate at least one of said plurality of frequencies to said at least one group. Different frequencies are be assigned to different sectors of the coverage area. The different frequencies are assigned to different antennas and multiple antennas may use frequencies allocated to a shared sector.

Claim 24, upon which claims 25-34 depend, recites a method including arranging at least two antennas to have different vertical properties to thereby provide at least two different areas of radio coverage within a predetermined area. The method also includes providing a plurality of frequencies for use in the predetermined area and dynamically adjusting transmission properties of at least one of the antennas based on a distribution of users within the predetermined area and frequency requirements for users within the predetermined area. The method further includes dynamically allocating each user equipment to at least one group associated with at least one of the at least two antennas based on link characteristics of a user equipment, and dynamically allocating at least one of said plurality of frequencies to said at least one group. The method is for controlling an antenna arrangement comprising at least two antennas for providing radio coverage to a plurality of user equipment in the predetermined area of a mobile communications network. Different frequencies are be assigned to different sectors of the coverage area,

wherein the different frequencies are assigned to different antennas and multiple antennas may use frequencies allocated to a shared sector.

Claim 35 recites an antenna arrangement including at least two antennas for providing radio coverage to a plurality of user equipment in a predetermined area of a mobile communications network. The at least two antennas are arranged to have different vertical properties to thereby provide at least two different areas of radio coverage within the predetermined area, and there being provided a plurality of frequencies for use in the predetermined area. The antenna arrangement also includes adjusting means for dynamically adjusting transmission properties of at least one of the antennas based on a distribution of users within the predetermined area and frequency requirements for users within the predetermined area. The antenna arrangement further includes allocating means for dynamically allocating at least one user equipment to at least one group associated with at least one of the at least two antennas based on link characteristics of a user equipment, and for dynamically allocating at least one of said plurality of frequencies to said at least one group. Different frequencies are be assigned to different sectors of the coverage area, wherein the different frequencies are assigned to different antennas and multiple antennas may use frequencies allocated to a shared sector.

As outlined below, Applicants submit that the cited reference of Martek does not teach or suggest the elements of claims 1, 3, 6, 7, 9-24, 26 and 28-35.

Martek teaches that an antenna providing transmit, receive or both, is constructed as a series of antenna dipole columns mounted in close proximity to the outer surface of a

nearby vertical conical shaped electrical ground surface. The ground surface is constructed circumferentially around a mast and the conical “slope” and is such that the ground surface faces downward at an angle, thereby creating on the ground a circumference within which the signal is propagated. Col. 4, lines 10-25, Col. 8, lines 7-46. Martek, therefore, discloses that an antenna is formed around a downward facing cone, comprised of columns of individual antenna elements. These columns of elements can be driven in such a way (by controlling the relative phases of the signals in the element) so as to “beam-form” the beam produced by the overall antenna. The beam-forming can also be done to produce a down-tilted beam by shifting the phase of the lower elements in a column, relative to upper elements.

Applicants submit that Martek does not teach or suggest each of the features recited in claims 1, 3, 6, 7, 9-24, 26 and 28-35. Each of claims 1, 3, 6, 7, 9-24, 26 and 28-35 recites, in part, that different frequencies may be assigned to different sectors of a coverage area, wherein the different frequencies are assigned to different antennas and multiple antennas may use frequencies allocated to a shared sector. Martek does not teach or suggest this feature. Therefore, Applicants respectfully assert that the rejection under 35 U.S.C. §103(a) should be withdrawn because Martek fails to teach or suggest each feature of claims 1, 3, 6, 7, 9-24, 26 and 28-35.


As noted previously, claims 1, 3, 6, 7, 9-24, 26, and 28-35 recite subject matter which is neither disclosed nor suggested in the prior art references cited in the Office

Action. It is therefore respectfully requested that all of claims 1, 3, 6, 7, 9-24, 26, and 28-35 be allowed and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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